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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,601	04/09/2004	Chuen-Der Lien	100303.P1910	1565
40418	7590	05/25/2006	EXAMINER	
HEIMLICH LAW			DINH, SON T	
5952 DIAL WAY			ART UNIT	
SAN JOSE, CA 95129			PAPER NUMBER	
			2824	

DATE MAILED: 05/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

**Office Action Summary**

Application No.

10/821,601

Applicant(s)

LIEN ET AL.

Examiner

Son T. Dinh

Art Unit

2824

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 March 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) 1-51,57-71 and 75-87 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-5,8-18,20-51,62-68,85 and 86 is/are allowed.
- 6) ☒ Claim(s) 6,19,57,69,75,77,79,81,82 and 87 is/are rejected.
- 7) ☒ Claim(s) 7,58-61,70,71,76,78,80 and 83 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/9/04</u> . | 6) <input checked="" type="checkbox"/> Other: <u>East search history</u> .              |

### **DETAILED ACTION**

The election filed on 3/29/06 has been entered.

The election of Group I (claims 1-51, 57-71 and 75-87) have been acknowledged.

Claims 52-56 and 72-74 have been canceled.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 6-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Schultz et al (U.S. Patent No 6,061,262).

Regarding claim 6, Schultz et al disclose a method comprising the step of not routing a match line (M4 or M5) of a negative exclusive OR circuit of a ternary CAM cell (see column 3, line 60-65) substantially parallel to a data line (M2). To be more specific, the bit line M2 is a data line (carrying data), and such line is perpendicular (not parallel) to the match line.

Regarding claim 7, figure 2 of Schultz et al shows a pair of bit line, one is true bit line and the other is a complement bit line (or data line) which is parallel to the true bit line, the match then the match line M4 would inherently not parallel to the complement data line.

Art Unit: 2824

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 19 is rejected under 35 U.S.C. 102(e) as being anticipated by Pereira (US Patent No 6,687,785).

Figure 2 of Pereira discloses a memory device comprising a plurality of memory cells (202) arranged in a row, one or more match lines (ML) running parallel to the row, means for connecting (the line that connects 202 to ML as shown in figure 2) the memory cells 202 to the match line, one or more traces (in this case, the word line WL would be considered as a trace) substantially parallel to and interspersed between one or more match lines (in this instant case, the word line between two match lines would meet this limitation).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 57, 69, 75, 77, 79, 81-82 and 87 are rejected under 35 U.S.C. 102(e) as being anticipated by the admitted prior art (figure 5 of the instant application).

Regarding claim 57, the admitted prior art (see figure 5 of the instant application) discloses a method comprising placing one line (low match metal 2 line would be considered as a line) substantially between a match line pickup via (high match via pickup) and a data line (metal 3 on the left of low match metal 2).

Regarding claims 69, 75, 77, 79, 81-82 and 87 the applicant is referred to figure 5 and the rejection applied to claim 57 for the reasons of this rejection.

***Allowable Subject Matter***

Claims 1-5, 8-18, 20-51, 62-68, 85-86 are allowed.

Claims 7, 58-61, 70-71, 76, 78, 80, 83-84 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fail to teach or suggest a method of placing one signal line between a match line and a data line in a CAM (claim 1); a method of coupling less than all memory cells in a row of a CAM to a same sense amplifier, coupling any remaining said less than all memory cells to a second sense amplifier, and routing a data line parallel to a match line, but not directly adjacent to the match line (claims 8, 9, 12, 17), and routing one or more lines between a data line and a match line via (claim 62, 63); one or more traces interspersed between one or more low match lines and one or more data lines running substantially parallel to the one or more low match line (claim 20), an

Art Unit: 2824

apparatus comprising means for connecting memory cells in a row to two or more high match lines, means for routing a trace between a low match line and a data line (claim 28); a memory device having cells arranged in a row wherein less than all of the cells in the row are in communication with a single sub-match line, first match line and a second match line (claim 40); a method comprising the step of placing a second set of one or more lines substantially between the match line pickup via and substantially inverted version of the data line in the Cam memory cell (claim 58); a method of connecting cells in a row of a CAM comprising the steps of separating a row match line into several sub-match lines, coupling less than all the cells in the row to a sense amplifier, and placing a trace between a match line pickup and a match line via (claim 66); routing one or more signal lines between a match line pickup via and a compare data line and a complement of the compare data line associated with the memory cells in the row of the sub array of the CAM (claim 67); vias for connecting one or more memory cells to none or more match lines, one or more traces between the vias and data lines (claims 68, 85-86); .

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


-Srinivasan discloses a memory device having match lines and data lines.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Son T. Dinh whose telephone number is 571-272-1868. The examiner can normally be reached on Monday to Friday 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on 571-272-1869. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

S. Dinh  
May 23, 2006



Son T. Dinh  
Examiner